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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Atsushi Fukunaga

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EXAMINER

LACLAIR, DARCY D

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

07/09/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,913	Applicant(s) FUKUNAGA, ATSUSHI	
	Examiner Darcy D. LaClair	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 7-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **6/23/2009** has been entered.

All outstanding rejections, except for those maintained below are withdrawn in light of the amendment filed on **6/23/2009**.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

2. **Claims 1-4, 7 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nishimura et al. (US 6,300,404)** in view of **Burnell-Jones et al. (US 2003/0085383)**.

With regard to Claim 1, Nishimura teaches a curable polymer composition comprising an oxyalkylene polymer having a silicon containing group which has a hydroxyl or hydrolysable group bonded to the silicon atom and a paraffinic hydrocarbon. (see abstract) The oxyalkylene polymer having a silicon group which has a hydroxyl is consistent with applicant's polyoxyalkylene containing at least one reactive silyl group.

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Furthermore, applicant's detailed description substantially overlaps with Nishimura with respect to the polyoxyalkalene. (See applicant's p. 3 line 15 through p. 12 line 25 compared to Nishimura col 1 line 65 through col 5 line 20) The paraffinic hydrocarbon, which functions as a plasticizer (see col 6 line 53-64), is preferably between 1 and 60 weight parts per 100. (see col 5 line 58-59) This encompasses applicant's claimed range for hydrocarbon based plasticizer, 5-50 parts by weight, with sufficient specificity that one of ordinary skill in the art would be directed to applicant's claimed range.

With regard to the needle crystal filler, Nishimura teaches several types of filler which may be incorporated, including asbestos, calcium carbonate, china clay or kaolin (aluminum silicate) magnesium carbonate, several types of fibers, and the like. (see col 8 line 1-10) In the examples, 120 parts by weight of filler are used. (col 8 ln 40) This falls within applicant's claimed range. Additionally, the fillers are taught as optional, (see col 7 line 60-62, col 8 line 1-2) so the range in which they are taught is from 0 to around 120 weight parts, which significantly overlaps with applicant's claimed range. Nishimura teaches that the curable polymer may be used as a sealing material, coating, adhesive, caulking material, coating material, and the like. (See col 8 line 26-29) While Nishimura teaches a variety of silicate type fillers and a variety of fillers with needle like morphologies, Nishimura does not specifically teach sepiolite or wollastonite.

Burnell-Jones teaches reinforcing fillers which offer benefits such as increased strength and stiffness, prevention of fiber bloom, reduced cost, reduced shrinkage, improved heat resistance and other thermal properties, improved appearance, and other benefits. Burnell-Jones teaches reinforcing fillers such as short and long fiber

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reinforcements, and calcium silicate. (See par [0107]) Burnell-Jones teaches micro and short fibers that will provide good effects where continuous fibers or fillers will not, including molding and extrusion applications. Whiskers are the ultimate-strength short-fiber reinforcement; with the phasing out of asbestos, wollastonite (calcium metasilicate) is a mineral fiber of primary importance. It has the advantage of being pure-white, and having a wholly acicular (needlelike) form. (See par [0131]) Based on the teachings of Burnell-Jones, it would be obvious to one of ordinary skill in the art to incorporate specifically a wollastonite filler as the filler of Nishimura, who teaches asbestos, as well as other types of needle like fillers.

With regard to Claim 2, Nishimura exemplifies undecane and tridecane, paraffinic hydrocarbons, in 20 parts per 100 parts by weight of the silyl based polymer. (See Table 1, Col 8 line 42-49), and teaches a preferable range for the paraffinic hydrocarbon between 1 and 60 weight parts per 100, which covers applicant's entire range. (See col 5 line 58-59)

With regard to Claim 3, Nishimura teaches a paraffinic hydrocarbon (see abstract, col 5 line 49-65) as well as chlorinated paraffins. (see col 7 line 7-8)

With regard to Claim 4, Nishimura teaches the isoparaffins 2-ethylheptane, 3-methylheptane, 2-methyloctane, 3-methyloctane, 2-methylnonane, 3-methylnonane, 4,5-diporopyloctane, 3-methyltridecane, 6-methyltridecane, and the like. (see col 5 line 5 - 55) These constitute a significant group of isoparaffin-based hydrocarbons, and significantly overlap with applicant's teachings (See applicant's p. 13 line 32-35).

With regard to Claim 7, Nishimura teaches that the number of the reactive silicon-containing groups contained in the oxyalkylene polymer is at least one, preferably between 1.1 and 5, on average, per one molecule of polymer. (see col 3 line 58-60) The oxyalkylene polymer having a silicon group which has a hydroxyl is consistent with applicant's polyoxyalkylene containing at least one reactive silyl group. (See applicant's p. 3 line 15-p. 12 line 25, Nishimura col 1 line 65-col 5 line 20)

With regard to Claim 10, Nishimura teaches a range from 0 to around 120 weight parts for the filler, and Burnell-Jones teaches the needle crystal filler required by Claim 1. The combination of these two references encompasses applicant's claimed range. It would be obvious to select a content of the filler within this range. It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See *In re Harris*, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974)

3. **Claims 8 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nishimura et al. (US 6,300,404)** in view of **Burnell-Jones et al. (US 2003/0085383)** and **Brown (US 5,208,629)**

The discussion with regard to **Nishimura** and **Burnell-Jones**, above in **paragraph 2**, is incorporated here by reference.

With regard to Claims 8 and 9, first with respect to the polyoxyalkylene polymer, Nishimura and applicant present nearly identical teachings. (See discussion above with respect to **Claims 1 and 7**.) There is also a significant overlap of paraffinic groups. (See discussion above with respect to **Claim 4**.) Nishimura teaches acicular fillers, and Burnell-Jones teaches specifically a whisker such as wollastonite. Burnell-Jones teaches that the filler will improve physical properties, and the strength-to-weight ratio of reinforced plastics is attributed largely to the nature of the reinforcements (see par [0130]) and that structure and size are important, and whiskers, such as wollastonite, are small but have a high degree of crystalline perfection; this size and purity gives the whiskers high strength. (See par [0131]) Burnell-Jones does not explicitly teach the aspect ratio of the wollastonite fibers to be employed. Brown teaches a composition reinforced with wollastonite fibers dispersed throughout the matrix (see abstract) which has an aspect ratio of 10 or greater. This improves both the flexural modulus and the tensile strength. (See col 2 line 33) The exemplified wollastonite is G-RRIM Wollastokup, having an aspect ratio of 15:1. (See col 9 line 33-37) It would be obvious to one of ordinary skill in the art to employ this particular wollastonite, taught by Brown, which has an excellent ability to improve the flexural modulus and tensile strength, as also taught by Burnell-Jones, in the composition of Nishimura in view of Burnell-Jones. The acicular nature of the wollastonite would have an effect on the viscosity of the composition, conferring thixotrophy; as the needles align

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due to shear (either extrusion or mixing), the viscosity is reduced, allowing improved extrudability. The thixotropic nature of the filler would also contribute to the initial fixability because the resin composition would have an increased viscosity when it was not under a shearing force, and therefore would hold its shape in an improved way.

Based on the significant similarities in the polymeric components, the paraffinic groups, and the acicular filler, properties which are consistent with applicant's properties are expected. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)

4. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Nishimura et al. (US 6,300,404)** in view of **Burnell-Jones et al. (US 2003/0085383)** and **Okamoto et al. (US 6,183,551)**

The discussion with regard to **Nishimura** and **Burnell-Jones**, above in **paragraph 2**, is incorporated here by reference.

With regard to Claim 11, Nishimura teaches the presence of a paraffinic hydrocarbon. (See abstract, col 5 line 49-65) Nishimura does not specifically teach a cycloparaffin based hydrocarbon. Okamoto teaches a curable resin composition containing a saturated hydrocarbon polymer having at least one reactive silicon containing group in a molecule, and saturated hydrocarbon oligomers (see abstract) and teaches fillers such as asbestos, carbon fibers, china clay, calcium carbonate, magnesium carbonate, and other similar fillers, (see col 10 line 10-20) such as those taught by Nishimura, which render the use of wollastonite obvious in combination with

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Burnell-Jones. (See discussion of **Claim 1.**) The saturated hydrocarbons include paraffinic oils and cycloparaffins such as naphthenic oils. (See col 8 line 35) These preferred hydrocarbons have good compatibility with the polymer having at least one reactive silicon containing group, and have a high plasticizing effect. (See col 8 line 43-44) Although the paraffinic oils may not provide the optimum results, they are inexpensive. (See col 8 line 51) It would be obvious to one of ordinary skill in the art to select a paraffinic hydrocarbon such as cycloparaffinic (naphthenic) oils for use in the invention of Nishimura in view of Burnell-Jones, for both the good compatibility and plasticizing effect they offer, as well as their inexpensive cost value.

Response to Arguments

5. Applicant's arguments filed **6/23/2009** have been fully considered. Specifically, applicant argues **(A)** The presently claimed invention is a curable resin composition which comprises a polyoxyalkylene polymer (a), 5 to 50 parts by weight of a hydrocarbon-based plasticizer, and 10 to 200 parts by weight of a needle crystal filler (c) where the needle crystal filler (c) is at least one member selected from the group consisting of sepiolite and wollastonite; sepiolite is hydrous magnesium silicate and wollastonite is calcium silicate; Neither sepiolite nor wollastonite is a calcium carbonate; Nishimura does not disclose the specific needle crystal filler embodiment of the presently claimed invention; neither Katayama nor Okamoto discloses sepiolite or wollastonite.

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With respect to argument (A), applicant's arguments have been considered and the rejections of Claims 1-4 and 6-10 over Nishimura and Katayama and the rejection of Claim 11 over Nishimura, Katayama, and Okamoto have been withdrawn *in light of applicant's amendment*. Support for the amendment is acknowledged in the previous version of Claim 1, which recited a Markush group containing the members sepiolite and wollastonite, as well as needle crystal calcium carbonate.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Friday 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Darcy D. LaClair
Examiner
Art Unit 1796

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